



UESC Process Overview





Please introduce yourself:

- ❖ Tell us your facility/job function.
- ❖ Questions & expectations?
- ❖ Tell us about your potential project.





During this presentation, we will:

- ❖ Present the steps involved in developing Utility Energy Service Contracts.
- ❖ Identify tools and resources available to assist you in implementing your project.





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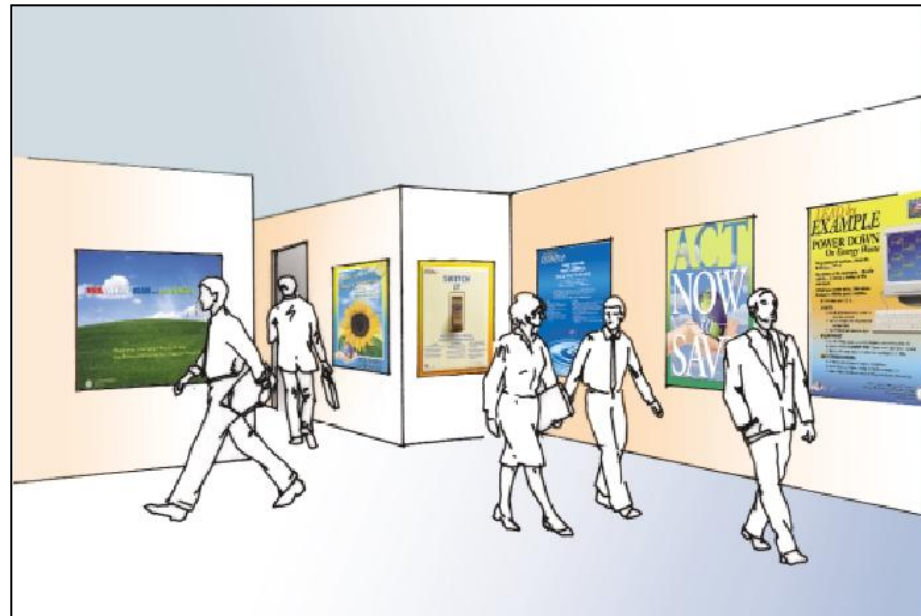
Federal Energy Management Program (FEMP) – Mission

Federal Energy Management Requirements





The Federal Energy Management Program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.





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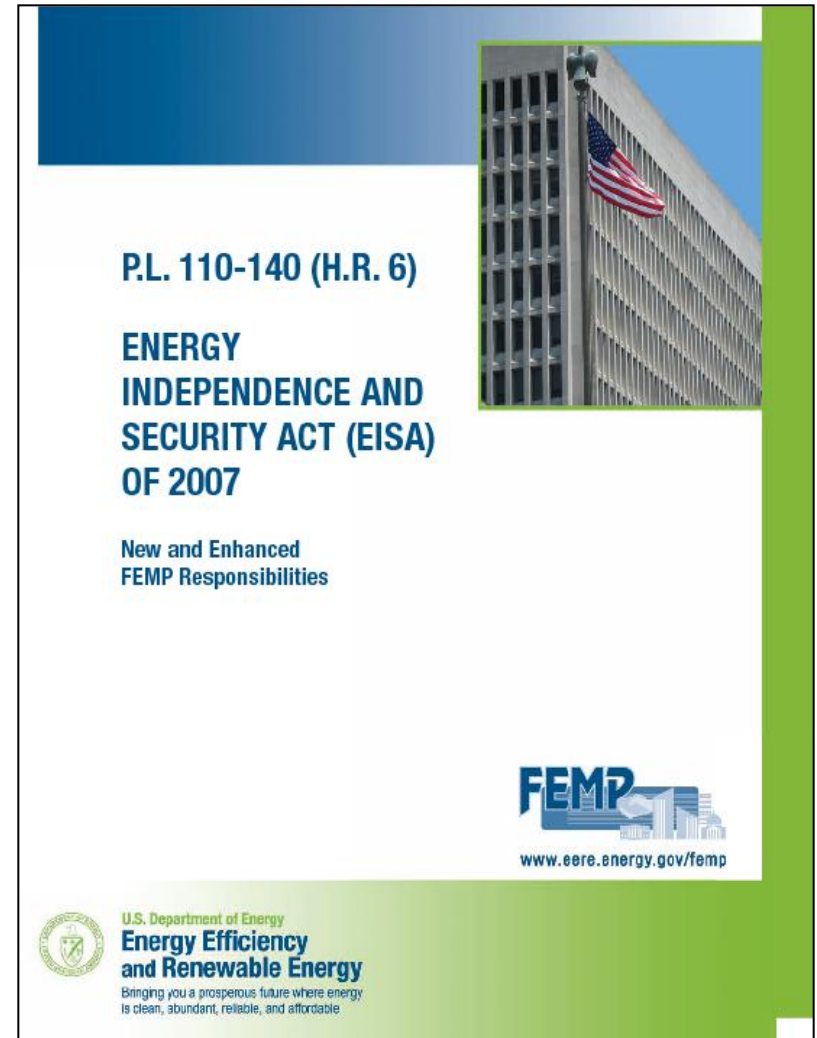
Federal Energy Management Requirements

http://www1.eere.energy.gov/femp/pdfs/eisa_femp.pdf

P.L. 110-140 (H.R. 6) ENERGY INDEPENDENCE AND SECURITY ACT (EISA) OF 2007

FEMP Guidance Resource for the
EISA:
New and Enhanced FEMP Responsibilities

http://www1.eere.energy.gov/femp/pdfs/eisa_femp.pdf





Energy Independence & Security Act of 2007 - Overview

Section 431 adopts the energy intensity reduction goals of Executive Order 13423 beginning in FY 2008

- Reduce Btu per gross square foot:
 - 9% in 2008
 - 12% in 2009
 - 15% in 2010
 - 18% in 2011
 - 21% in 2012
 - 24% in 2013
 - 27% in 2012
 - 30% in 2015
- Compared to FY 2003 base year



Energy Independence & Security Act of 2007 - Overview

Section 432 establishes a framework for facility project management

- ❖ Agencies must identify all “covered facilities” that constitute at least 75% of energy use.
- ❖ Each facility must have a designated energy manager responsible for:
 - Completing comprehensive energy and water evaluations (25% of facilities each year)
 - Implementing identified ECMs; (bundling permitted)
 - Following up on implemented ECMs
- ❖ Web-based tracking system to certify compliance; including each facility’s potential measures, estimated cost and savings of measures.
 - Tracking system will be available to Congress, other Federal agencies, industry, and the public
 - Some specific data exempted from disclosure for national security purposes.
- ❖ In addition to tracking system, energy managers shall enter energy use data for each facility into a benchmarking system (i.e., Energy Star Portfolio Manager)



Energy Independence & Security Act of 2007 - Overview

- ❖ DOE Guidance/Decisions:
 - guidelines on designating energy managers criteria for covered facilities and
 - guidelines for project implementation and follow-up measures
Select benchmarking system (Energy Star) or develop another
OMB energy scorecards to be based on the requirements of Section 432
 - Scorecards available to Congress, other Federal agencies, and the public
- ❖ Authorizes agencies to use appropriations, private financing, or a combination to comply with its requirements
 - Resource Energy Managers (REMs) for assigned energy managers
 - ESPCs, UESCs for evaluations/project implementation

Section 434(b), Metering: Not later than 1 Oct 2016, each agency shall provide for equivalent metering of natural gas and steam (as currently required for electricity)



Energy Independence & Security Act of 2007 - Overview

Section 433, Federal Building Energy Efficiency Performance

Standards, directs DOE to issue revised Federal building standards that:

- require that the fossil fuel-generated energy use of the new buildings is reduced (compared to 2003) by:
 - 55% for 2010
 - 65% for 2015
 - 80% for 2020
 - 90% for 2025
 - 100% for 2030
- require that sustainable design principles shall be applied



Energy Independence & Security Act of 2007 - Overview

Section 434 requires that each Federal agency ensure that major renovations/expansions employ the most energy efficient designs, systems, equipment, and controls that are life-cycle cost effective. Each Federal agency shall:

- Develop a process for reviewing each decision made on a large capital energy investment to ensure that the requirements are met; and
- Report to the Director of the Office of Management and Budget on the process established.

Section 523 requires 30 percent of the hot water demand in new Federal buildings (and major renovations) to be met with solar hot water equipment, provided it is life-cycle cost-effective.



Energy Independence & Security Act of 2007 - Overview

Section 435 prohibits Federal agencies, effective 19 Dec 2010, from leasing buildings that have not earned an EPA Energy Star label. Exemptions are provided if:

- no space is available in a labeled building that meets the functional requirements of an agency, including locational needs;
- the agency proposes to remain in a building that the agency has occupied previously;
- the agency proposes to lease a building of historical, architectural, or cultural significance (as defined in section 3306(a)(4) of title 40, United States Code) or space in such a building; or
- the lease is for not more than 10,000 gross square feet of space.



Energy Independence & Security Act of 2007 - Overview

Section 436, High-Performance Green Federal Buildings, directs **GSA** to establish Federal High-Performance Green Building Office and Advisory Committee to:

- coordinate outreach with other agencies
- establish green practices and standards for the Federal sector
- review/analyze current Federal budget practices and life-cycle costing issues

For conducting life-cycle cost calculations

Section 441, Public Building Life-Cycle Costs, increases the time period ***from 25 years, in prior law, to 40 years.***

- Provide findings to DOE regarding a certification system identifying new and existing Federal facilities as high-performance green buildings
 - Section 433 requires DOE to identify certification system and level
- Identify incentives to expedite H-P green buildings
 - recognition awards
 - retention of savings for re-investment



Energy Independence & Security Act of 2007 - Overview

Sec 513: Promoting Long-Term ESPCs and Verifying Savings

- ❖ Prohibits agencies from establishing a policy to limit ESPC, ***and all privately financed contract vehicles***, projects to less than the ***maximum 25 year term***
- ❖ Prohibits agencies from establishing policies to limit the size of individual projects

Sec 514: Permanent Reauthorization

- ❖ Deletes sunset provision, authorizes ESPC permanently



Energy Independence & Security Act of 2007 - Overview

- ❖ **Section 522** prohibits, except under certain circumstances, the purchase of incandescent light bulbs for use in Coast Guard office buildings.
- ❖ **Section 524** encourages Federal agencies to minimize standby energy use in purchases of energy-using equipment.
- ❖ **Section 525** requires Federal procurement to focus on use of Energy Star and FEMP-designated products.



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Web Access

Energy Independence & Security Act of 2007 - Overview

http://www1.eere.energy.gov/femp/pdfs/eisa_femp.pdf



Renewables

- ❖ At least half of the statutorily required renewable energy (7.5% by FY 2013) from new renewable sources (EO, EPACT)
 - http://www1.eere.energy.gov/femp/pdfs/epact05_fedrenewenergyguid.pdf

Water

- ❖ Reduce water consumption intensity 16 % by the end of FY 2015 (EO)
 - http://www1.eere.energy.gov/femp/pdfs/water_guidance.pdf

Green Buildings

- ❖ New Construction/Major Renovations to comply with the Guiding Principles
- ❖ 15% of existing building inventory must comply by the end of FY 2015
 - http://www.wbdg.org/references/sustainable_eo.php
 - Additional guidance to be completed by end of FY08



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President Obama Signing E.O. 13514



Executive Order 13514

*Federal Leadership in Environmental, Energy, and
Economic Performance, signed October 2009*



EO 13514 mandates agencies to develop an **Integrated Agency Strategy for Sustainability** - including reduction targets:

- ❖ Greenhouse Gas Emissions
- ❖ Energy Efficiency
- ❖ Sustainable Federal Buildings
- ❖ Sustainable Acquisition
- ❖ Electronic Stewardship
- ❖ Environmental Management
- ❖ Water Use Efficiency & Management
- ❖ Pollution Prevention & Waste Elimination
- ❖ Regional & Local Integrated Planning

To lead by example and achieve a clean energy economy



- ❖ Reduce energy intensity in buildings
- ❖ Increase use of renewable energy
- ❖ Implement on-site renewable energy generation projects
- ❖ Reduce fossil fuels use:
 - Low GHG Emitting Vehicles (including alternative fuel vehicles)
 - Optimize number of fleet vehicles
 - Reduce vehicle petroleum use 2% annually
 - FY2005 (baseline year) through FY2020

Questions?

Visit FedCenter.gov

Contact the Office of the Federal Environmental Executive at info@ofee.gov



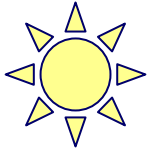
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Utility Energy Services Contracts

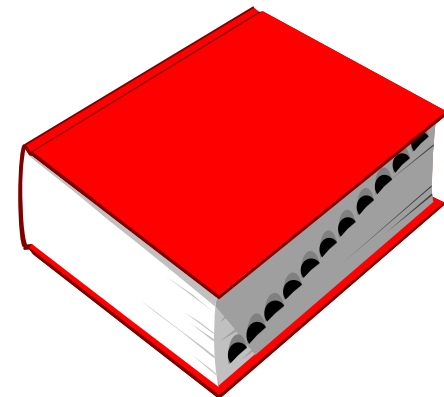
Basics





Definition

Utility Energy Services Contracts are contracts that allow utilities to provide their federal customer agencies with comprehensive energy and water efficiency improvements and demand reduction services





- ❖ Interior and exterior lighting replacement & lighting controls
- ❖ Energy management control system
- ❖ HVAC equipment and/or system replacement or retrofit
- ❖ Water conservation device or control installation
- ❖ Construction of alternative generation or cogeneration facilities
- ❖ Commissioning of HVAC systems and components
- ❖ Operations & maintenance of ECMs
- ❖ Other ECMs that are cost effective and encourage the use of renewable energy, reduce energy consumption, and/or energy demand



UESC Process:

- ❖ Utility provides comprehensive assessment of cost effective EE / RE / H₂O opportunities
- ❖ Utility fronts the capital costs of the assessment, design, construction, performance testing, and other optional services like O&M, Commissioning, and M&V
- ❖ Agency agrees to pay for the costs of services and construction either from appropriations or from project financing, or a combination of the two



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UESC - Basics

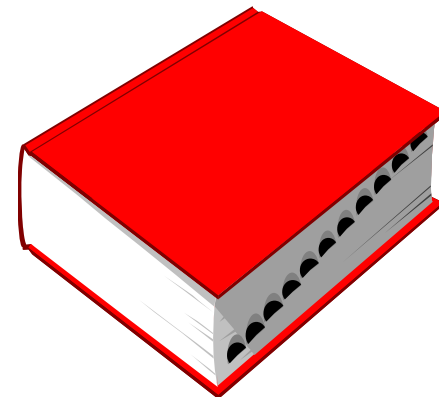
Utility Services

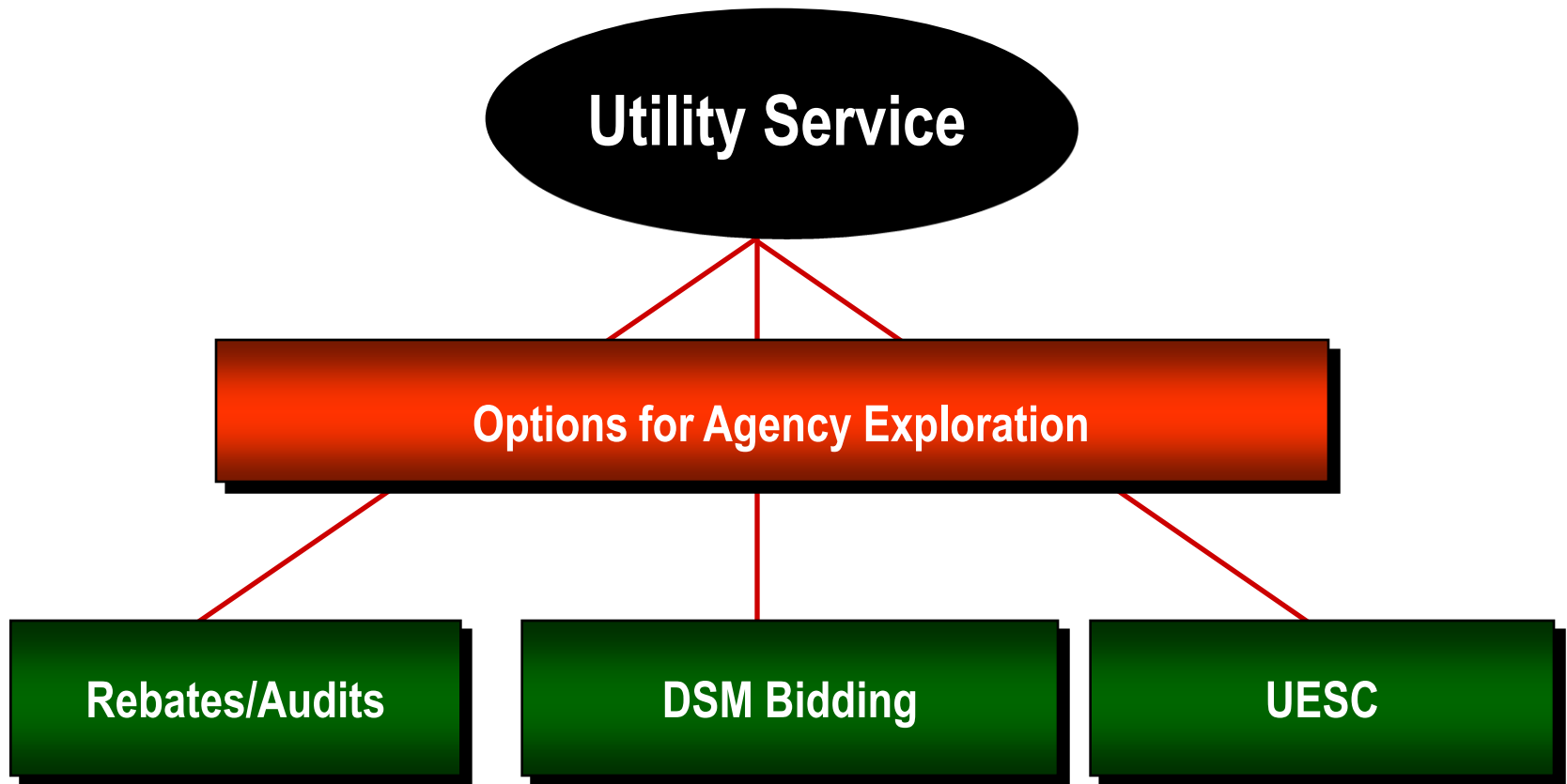


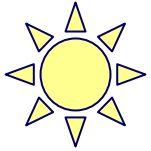


Definition

A **utility incentive program** is any service offered by a utility or developed in conjunction with an agency that assists customers in implementing energy and water conservation projects







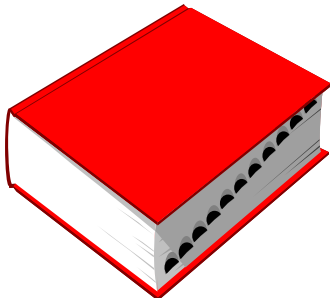
Definition

Energy Efficiency Programs:

Public Purpose Programs are administered by utilities, state agencies or other 3rd parties; and are paid for by ratepayers through “systems benefits charges”

Utility programs are administered by the utility and paid for by ratepayers through their bundled rates

Demand Response / Load Management Programs: provide incentives to curtail demand and reduce load during peak periods in response to system reliability or market conditions





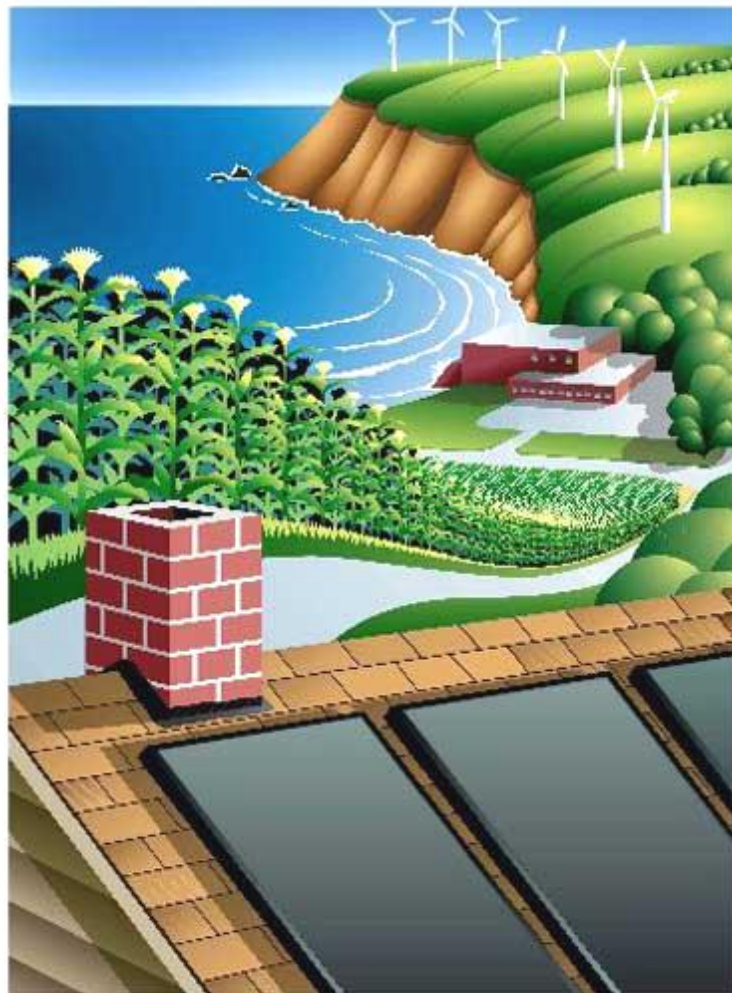
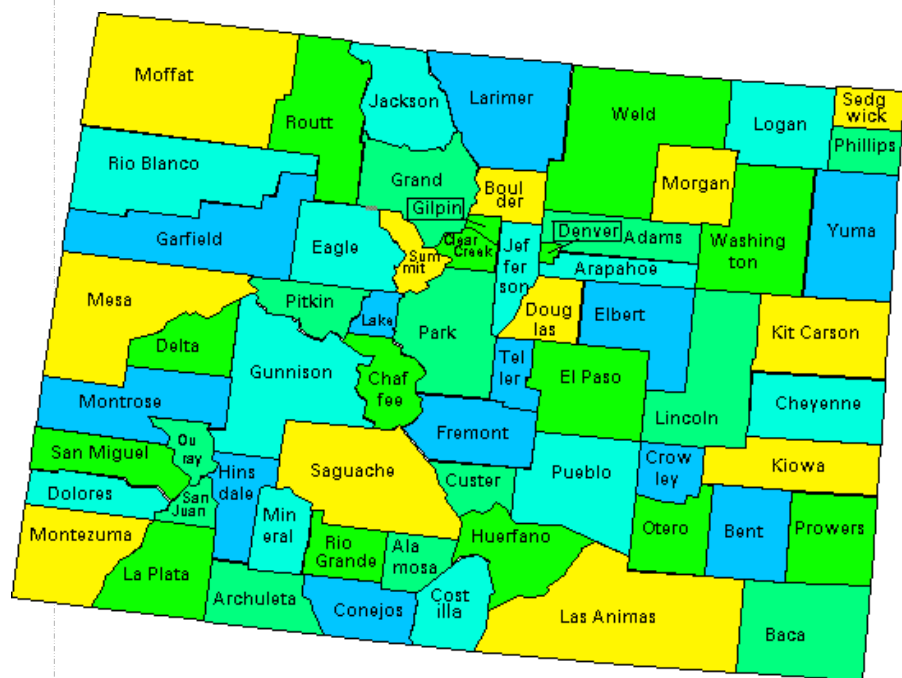
Energy Efficiency Funds & Demand Response Programs

A map of the United States with states color-coded by region. The states are labeled with their abbreviations. The regions are: West (blue), Southwest (orange), Mountain (white), Great Plains (blue), Midwest (blue), Northeast (blue), South (green), and Southeast (green). The map also includes Alaska (AK) and Hawaii (HI).

http://www1.eere.energy.gov/femp/program/utility/utilityman_energymanage.html



http://www1.eere.energy.gov/femp/financing/eip_co.html





Technical Services

Audits

Feasibility
Studies

Engineering &
Design

Construction &
Installation

Performance
Guarantees

Training

O&M Services

Project
Management

Financial Services

Rebates

Project
Financing



- ❖ Rebates/Incentives
 - ❖ Rate analysis and load management assistance
 - ❖ Technical assistance and/or design review
 - ❖ Commissioning
 - ❖ Electronic data transfer
- ❖ Metering
 - ❖ Peak shaving
 - ❖ Real time pricing
 - ❖ Interruptible programs
 - ❖ Renewable energy
 - ❖ Power quality and reliability assistance
 - ❖ Web access to utility account data

Based on survey of FUPWG member utilities

Actual offerings are utility specific



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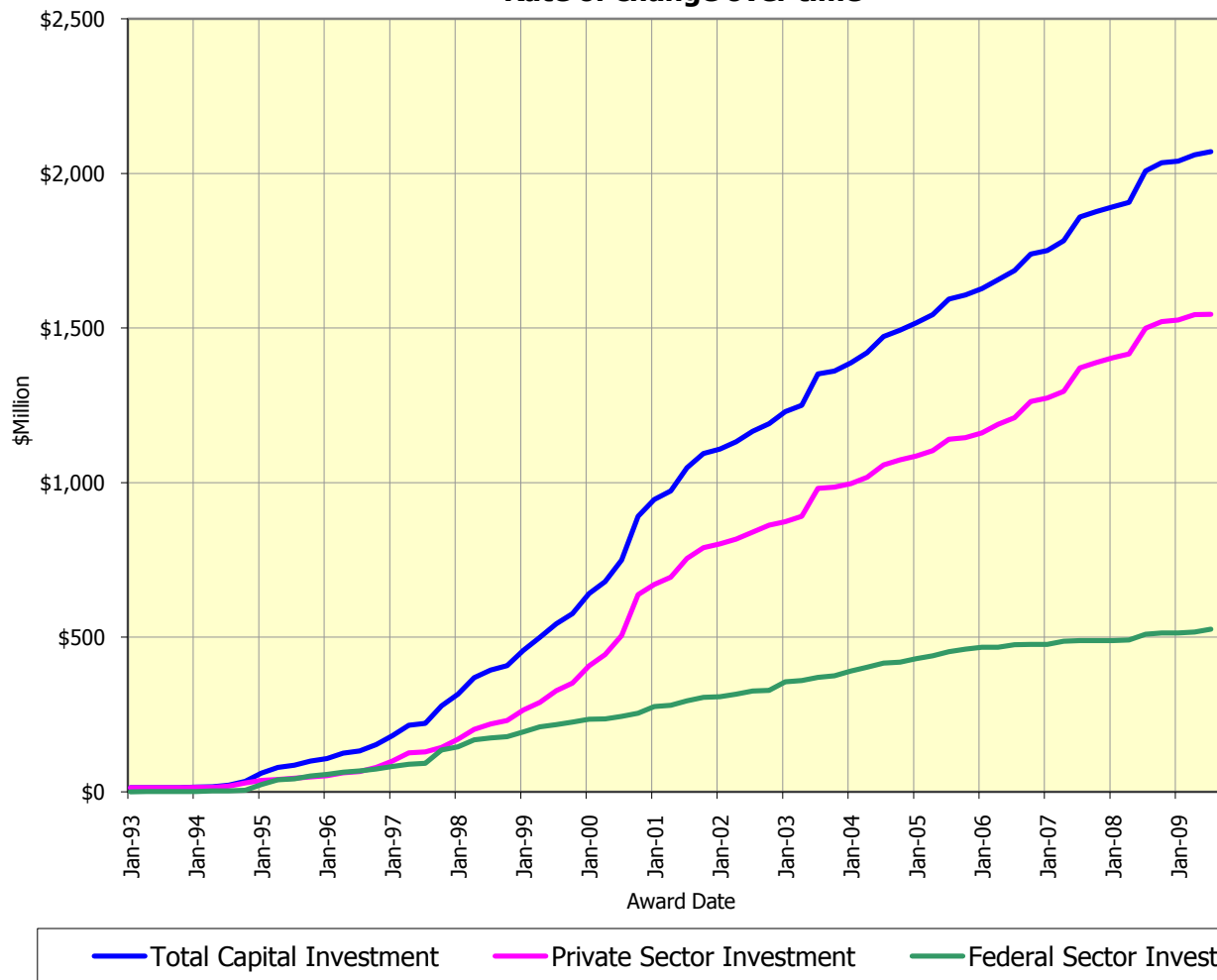
UESC - Basics

Considerations





UESC Project Total Capital Investment
Rate of change over time



Electric Utility Industry Pledge (EEI)

Provide Federal customers w/ alternative financing & support services to implement at least \$2.0 billion in LCC-effective facility improvement projects to achieve 2010 EE & RE goals

Notes:

Investment is based on projects' capital cost.

Data was last edited on 10/16/2009 and is subject to change.

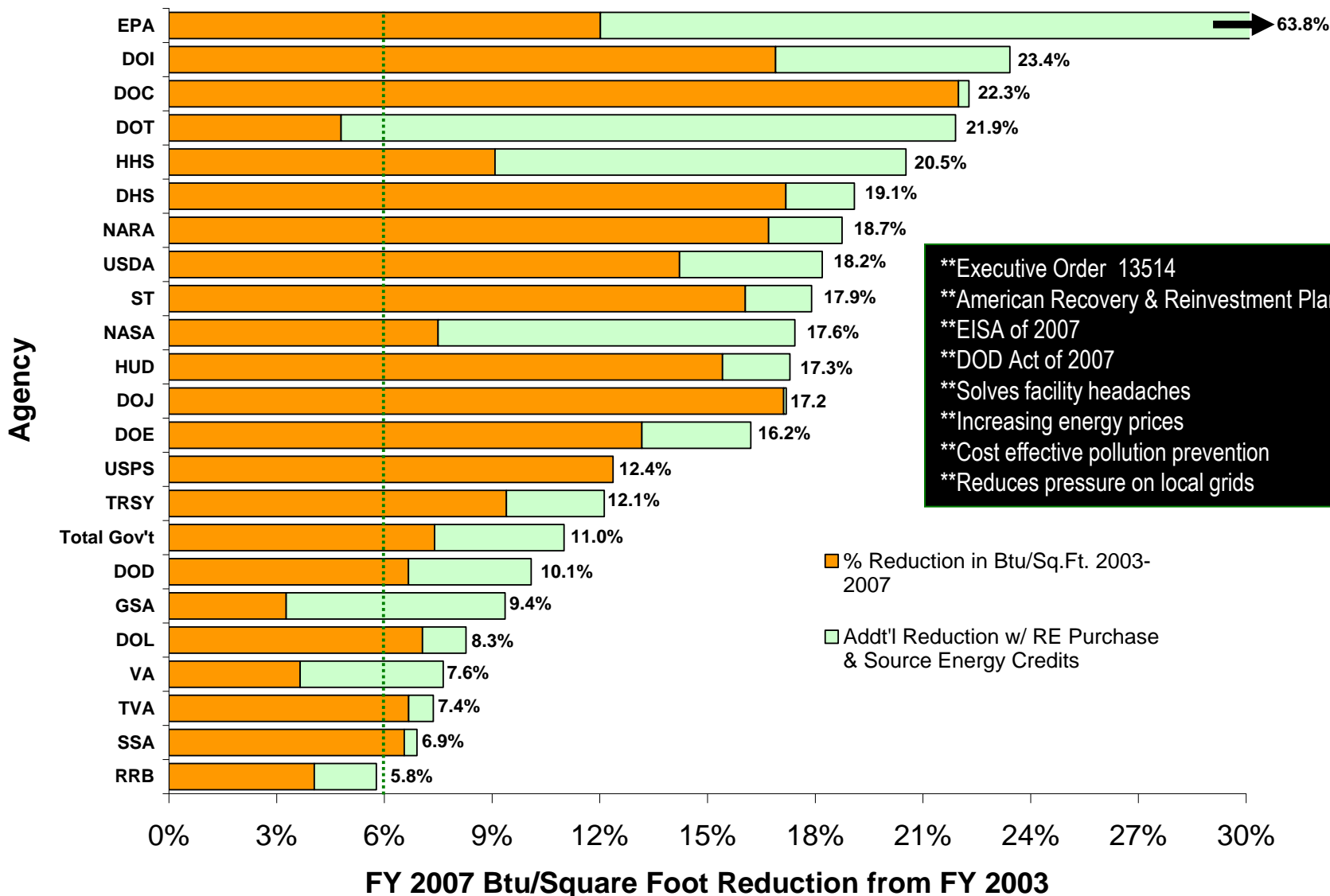


UESC Data Collection Overview*

- ❖ Total Capital Investment for Awarded Projects between 1994 and October 2009: **\$2.10 Billion**
 - Fiscal Year 2005 Total: **\$117 Million**
 - Fiscal Year 2006 Total: **\$93 Million**
 - Fiscal Year 2007 Total: **\$72 Million**
- ❖ Based on voluntary reporting from utilities and agencies



Agency Energy Performance



**Executive Order 13514

**American Recovery & Reinvestment Plan of 2009

**EISA of 2007

**DOD Act of 2007

**Solves facility headaches

**Increasing energy prices

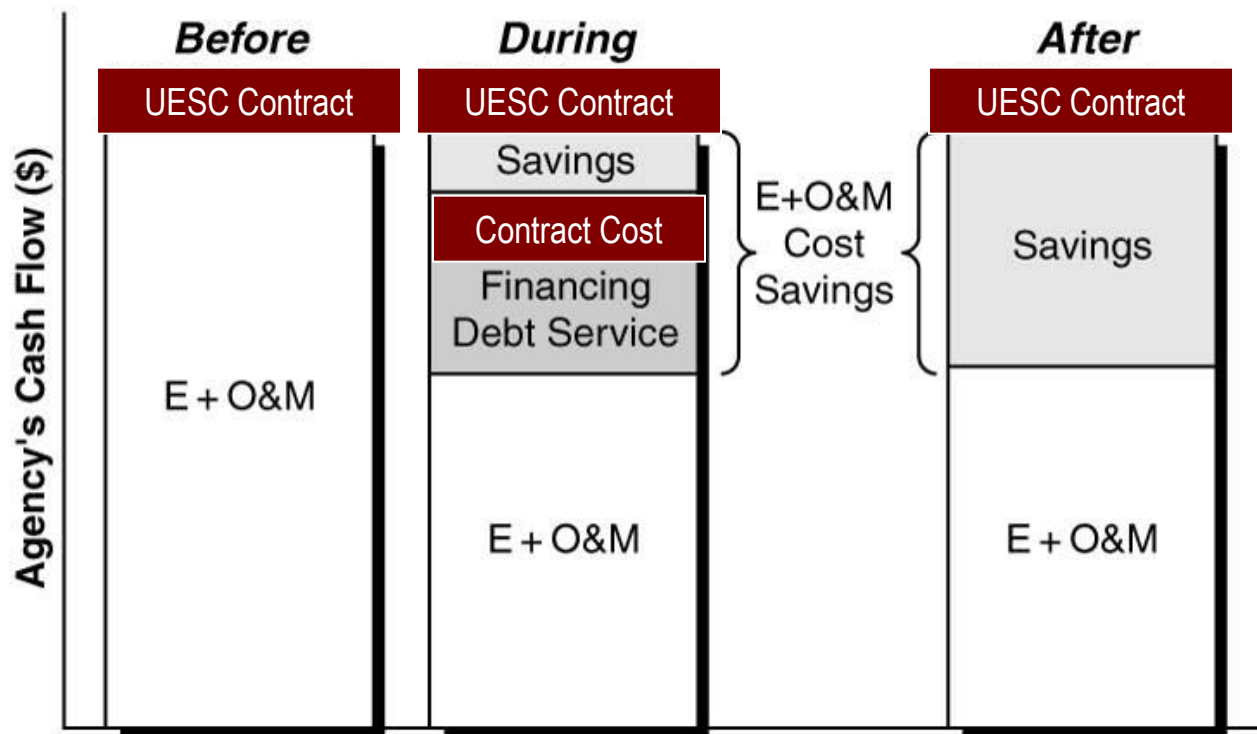
**Cost effective pollution prevention

**Reduces pressure on local grids

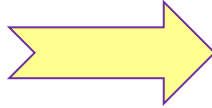


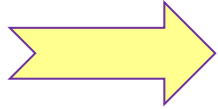
- Financed projects are paid from savings -
- No increase in government spending occurs -

- ✓ Pay a lower utility bill
- ✓ Pay the contractor
- ✓ Avoid costs





- ❖ Existing authority since 1992.
- ❖ Streamline contracting effort for financed energy project.
- ❖ You already know them! - You work with a known entity
- ❖ They already know you! - Your utility has unique expertise and a knowledge of your facility
- ❖ It's an established source – Utilities best financing rate
- ❖ Wide range of projects can be implemented
- ❖ One-Stop Shop (Turnkey projects) 



❖ **Project Planning**

- **Initial Audit** - Identify potential opportunities
- **Feasibility Study** - Provide in-depth assessment

❖ **Implementation**

- **Design and Engineering**
- **Construction, Performance Testing, & Project Financing**

❖ **Optional Services**

- **Commissioning**
- **Measurement & Verification**
- **Operations & Maintenance**



- ❖ UESCs may not be available to all facilities
- ❖ Utility may be new to this type of contracting
- ❖ Contract process is not rigid
- ❖ Agency's relationship with utility
- ❖ Contract term





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UESC – Enabling Legislation

Utility Programs





Section 152(f) - Utility Incentive Programs

Agencies:

- ❖ Are ***authorized and encouraged to participate*** in utility programs generally available to customers
- ❖ May accept utility financial incentives, goods, and services generally available to customers
- ❖ Are encouraged to enter into negotiations with utilities to design cost effective programs to address unique needs of facilities used by agency



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UESC – Enabling Legislation

Code of Federal Acquisition Regulations





FAR Part 41 - Utility Services

- ❖ Provides for GSA authority to prescribe policies and methods governing the acquisition and supply of utility services for federal agencies
- ❖ Provides GSA authority to delegate authority to specific agencies to purchase utility services
- ❖ Provides GSA authority to issue areawide contracts (AWC) for utility services within the franchised, regulated utility territory

Utility Service is defined as furnishing electricity, natural or manufactured gas, water, sewage, thermal energy, chilled water, steam, hot water, or high temperature hot water

http://www.eere.energy.gov/femp/financing_types.cfm



10 USC 2913 - Energy savings contracts and activities

- ❖ ***Encourages participation*** in gas or electric utility programs for the management of energy demand or for energy conservation
- ❖ Accept financial incentives, goods and services generally available from the utility

10 USC 2866 amended - Water Conservation Authority

- ❖ Water cost savings realized – One-half of the savings shall be used for water conservation activities as designated by DoD; One-half of the savings to be ***used at the installation at which the savings were realized***



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UESC – Resources

Enabling Documents





Details:

- ❖ Legislation and Executive actions
- ❖ Legal opinions
- ❖ Agency guidance

DRAFT



Utility Energy Services Contracts: Enabling Documents

2009 Interim Update: Final Draft

Prepared for the
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Federal Energy Management Program

March 2009
DOE/GO-102009-2588



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Legal Opinions:

- ❖ DOE - Rebates - In the case of utility rebates, the rebates are essentially discounted prices for utility services and constitute refunds to the Federal Government. ***...rebates can be issued directly to DOE.***
- ❖ DOE – Relationship of the Anti-Deficiency to Multi-Year Contracts Under the Utility Incentive Program... - no need to obligate total estimated cost of contract, but ***only necessary to cover annual costs under the contract***



Legal Opinions (continued):

- ❖ GSA - Authority for Extended Utility Agreements – authorized to enter contracts for terms ***greater than ten years***
- ❖ GSA - Exception From The Competition-In-Contracting Act's Full and Open Competition - Section 152's plain language contains an express authorization for an agency to participate in DSM contracts... This language appears to provide express authority for an agency to directly approach a utility concerning DSM services,... ***without the use of full and open competition***



National Defense Authorization Act for 2007

2911: Energy Performance Goals & Plan for DoD

- ❖ Special Considerations – flexibility to evaluate ECMs to include alternative energy initiatives and energy reduction goals, *as opposed to requiring assessment of measures based solely on economic return within 10 years to justify the investment*

2911(d): Selection of Energy Conservation Measures

- ❖ Readily available
- ❖ ***Demonstrate economic return on investment***
- ❖ Consistent with energy performance goals and energy performance plan
- ❖ Supported by special considerations



National Defense Authorization Act for 2007

Availability and use of energy cost savings

- ❖ Availability – fiscal year appropriations equal to the amount of energy cost savings, including financial benefits from shared energy contracts shall remain available until expended
- ❖ Use – one-half shall be used for the implementation of additional ECMs; one-half shall be used at the installation at which the savings were realized



Emergency Economic Stabilization Act of 2008

Public Utility Taken Into Account

- ❖ ***Allows Public Utilities to use Investment Tax Credits (ITC)*** extended through December 31, 2016
 - **Effective February 12, 2008**
 - Applicable to:
 - Energy Efficiency –
 - Combined Heat & Power Systems
 - Solar Systems



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Utility Energy Services Contracts

GSA Areawide Contracts & Other UESC Vehicles





- ❖ **Areawide Contract (AWC)**
 - GSA / Utility Contract for utility services
 - Agency Task Order for energy management services
- ❖ **Separate Contract or Stand Alone Contract**
 - Agency / Utility Contract for energy management services
- ❖ **Basic Ordering Agreement (BOA)**
 - Agency / Utility Agreement used in conjunction with an AWC or Separate Contract for energy management services
- ❖ **Interagency Agreement (IA)**
 - Agency / Agency Agreement for energy management services



Utility Service Contract – “Areawide Contract”

- ❖ Areawide Contract (AWC), generally a 10-year contract
 - AWC is an Indefinite Delivery Indefinite Quantity (IDIQ)
 - AWC is between the franchised, regulated utility and the US government through GSA
 - Agencies within the utility service territory may use it

**UESC Task Order placed under the AWC will specify project
Terms & Conditions for energy management services**



Utility Service Contract – Separate or Stand Alone Contract

- ❖ Generally written as a one-time-use contract for energy management services between the agency and its serving utility
- ❖ Terms & Conditions are often established using the Model Agreement Template
 - Written by FUPWG membership
 - Intended to provide ~ 80% of essential Terms & Conditions
 - The signed agreement is referred to as the Master Agreement

Separate Contract includes terms and conditions, scope of work, and is generally a single UESC



Utility Service Contract – “BOA”

- ❖ Basic Ordering Agreement (BOA), generally a multi-year agreement outlining the terms and conditions of future UESC task orders
 - BOA is between the federal agency and its serving utility to serve agency facilities within the utilities service territory

Agencies use a BOA with a Task Order under the AWC or with a Master Agreement and Stand Alone Contract for energy management services



Interagency Agreement for Energy Management Services

- ❖ Bonneville Power Administration (BPA)
 - Provides energy management services to their federal customers within their service territory

Agencies use interagency agreements to request and pay for work done by another agency including energy management services

UESC - Vehicles

Use of the Areawide





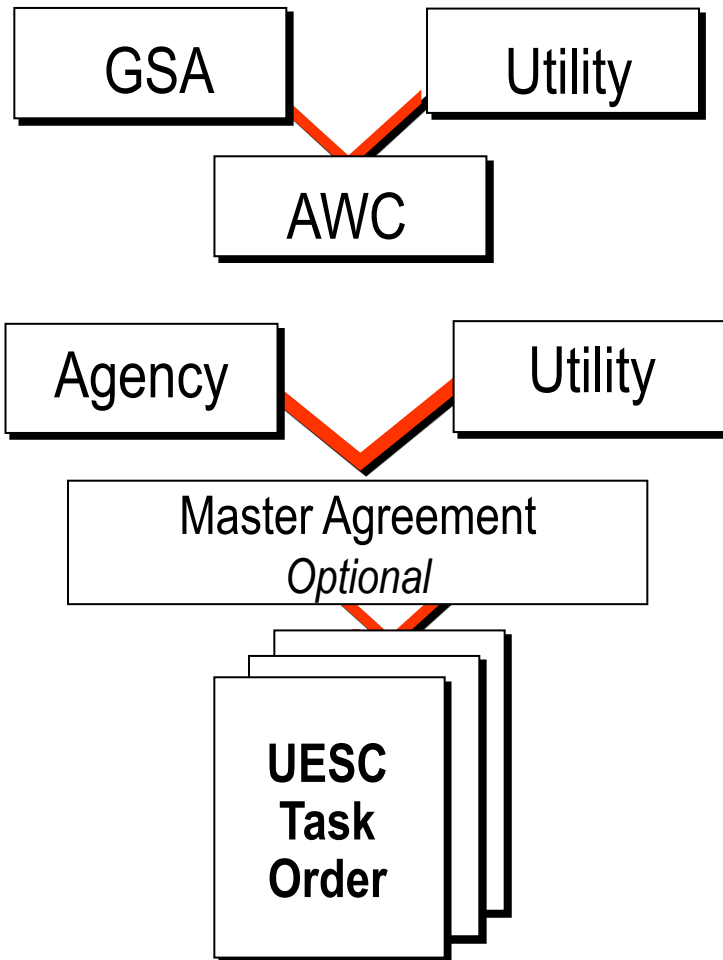
UESC using Areawide Contract for Contracting Vehicle

- ❖ Quick and easy method for procuring energy and DSM services
- ❖ Well-established and successful track record
- ❖ Easy way to accelerate project schedules
- ❖ GSA and FEMP can help



UESC using Areawide Contract for Contracting Vehicle

FAR Part 41 – Utility Services Contracts – GSA places a blanket contract for utility services



Agency can place a UESC Task Order directly under the AWC

or

Utility and Agency can negotiate detailed site-specific terms and conditions

Agency and Utility can use the Model Agreement as the template for the Master Agreement



1. The ECMs must reduce energy or water consumption or demand;
2. The ECMs must be directly related to energy or water use or demand reduction;
3. The majority of work must be for 1 or 2; and,
4. The ECMs must be an improvement to real property *(land and buildings and anything firmly attached and integrated; not personal property)*



- ❖ Energy Management Services Authorization (EMSA)
 - Nature of Service
 - Estimated Project Cost, Capital Cost, % of Cost Financed
 - Rebate Amount (if applicable)
 - Simple Payback
 - Accounting and Appropriation Data
 - Energy Conservation Measures
 - Signed by Agency and Utility

UESC - Vehicles

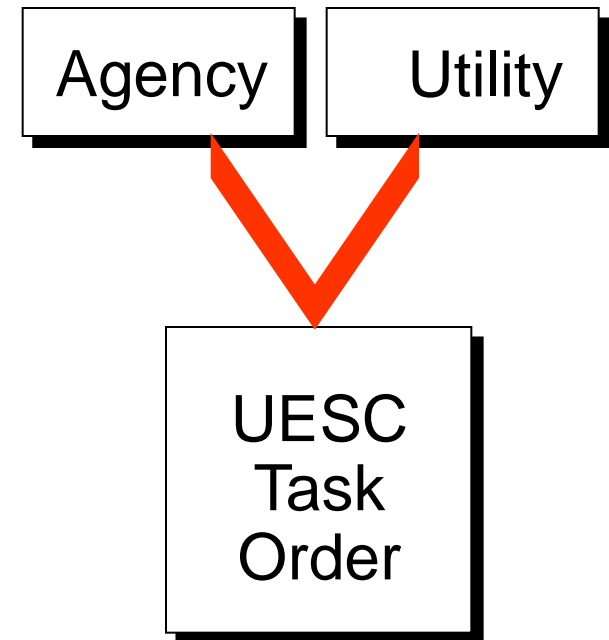
Separate or Stand Alone Contract





FAR Part 41.205 - any agency can place a separate contract *in the absence of an areawide contract*

- ❖ Agency / serving utility develop terms & conditions
- ❖ The model agreement template is often used to create a “Master Agreement” establishing site specific terms & conditions for energy management services



**Agency and Utility can use the Model Agreement
as the template for a site specific contract**

UESC - Vehicles

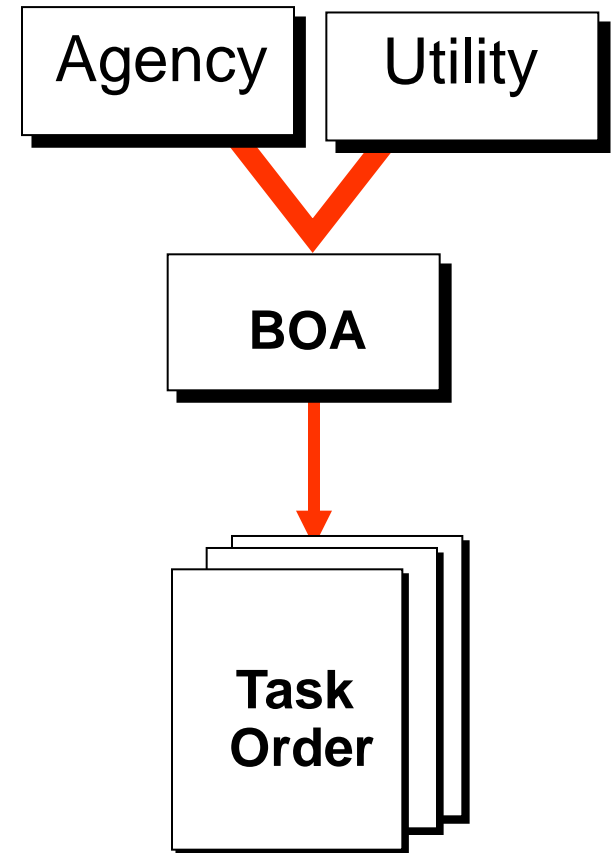
Basic Ordering Agreement





FAR Part 16 - Service Contract, establishes terms & conditions *for future contracts*

- ❖ Agency places BOA with utility to establish terms & conditions
- ❖ BOAs are used in conjunction with AWCs and separate contracts
- ❖ Task Orders are placed under the AWC or the separate contract



Agencies and Utilities use the Model Agreement template to define the terms & conditions of the BOA

UESC - Vehicles

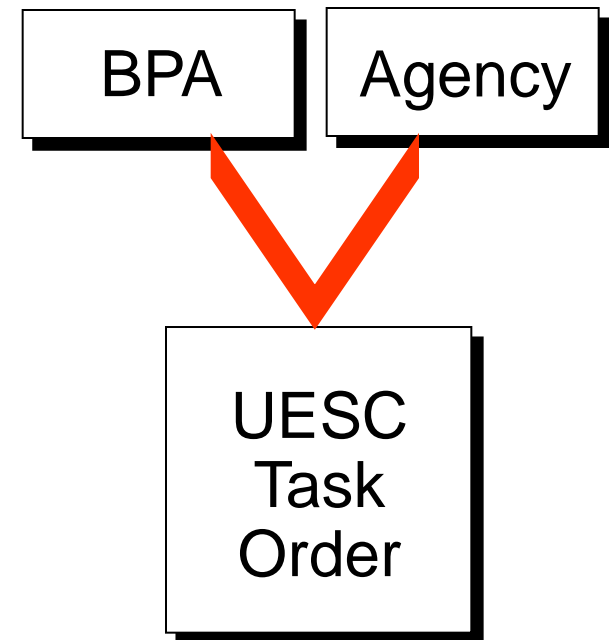
Interagency Agreement





FAR Part 41.206 – agencies can request and pay for services from other government agencies using “Interagency Agreements”

- ❖ Bonneville Power Association (BPA)
 - BPA provides UESCs to their federal customers
 - Limited to BPA’s service territory



Agencies use interagency agreements to request and pay for work done by another agency including energy management services



- ❖ Why we need to finance projects: Allows for needed infrastructure improvements without increasingly scarce direct appropriations
- ❖ Financing resources:
 - Utility Energy Service Contracts (UESC)
 - Energy Savings Performance Contracts (ESPC)
- ❖ “Choosing a Financing Vehicle for Energy Efficiency Projects for Federal Sites”

http://www1.eere.energy.gov/femp/docs/choosing_financing.doc



OMB Recommendations to Improve Alternative Financed Projects

- ❖ Encourage all agencies to utilize experienced Project Facilitators on their projects.
 - Explore all avenues to help agencies reduce the time from kickoff to an operating project.
- ❖ Reduce financing costs
 - Agencies to verify reasonableness of financing offer
 - Agencies to verify pricing is in line with direct-funded projects
- ❖ Streamline administration of follow-up services (M&V, O&M, R&R) during the performance period to ensure savings persistence.



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Utility Energy Services Contracts --- Planning





FEMP Project Facilitators

- ❖ Guide agency teams through project implementation
- ❖ Provide technical & procurement assistance at various levels of involvement:
 - Partnership Building
 - Advise and Consult
 - In-depth Support





Technical & procurement assistance for energy and water projects

- ❖ UESC Workshops
- ❖ Build partnerships
- ❖ Contracting expertise
- ❖ Technical review
- ❖ Process improvement



DOE FEMP Sponsored Resources

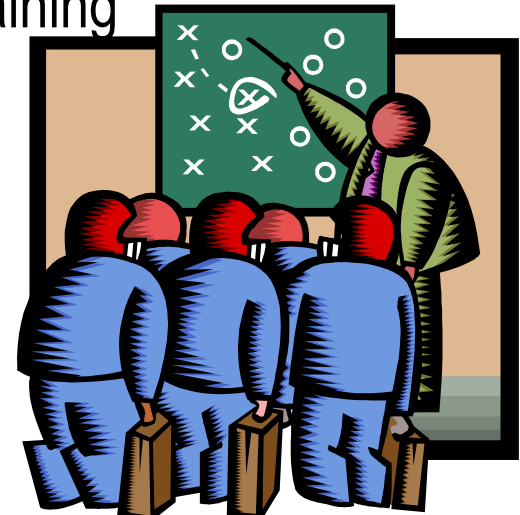
- * UESC Project Workshops

- * UESC Webpage

<http://www1.eere.energy.gov/femp/financing/uescs.html>

- * UESC Enabling Documents & Training DVD

- * FEMP supported conference calls & web-training



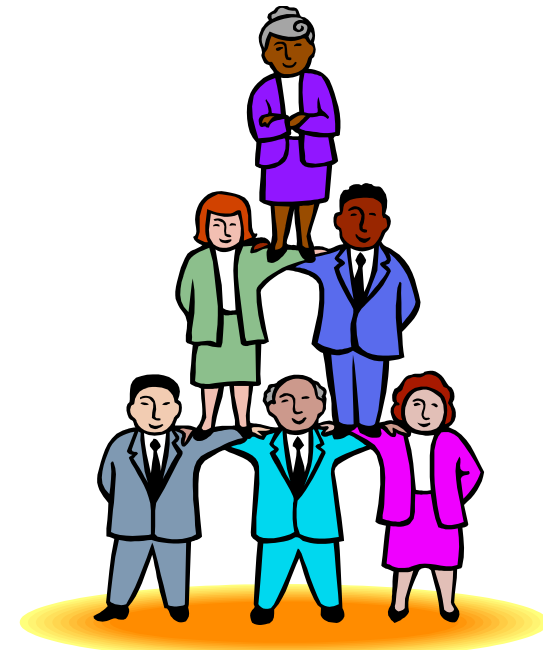


❖ **Put your team together early**

- To ensure project buy-in and support
- To reduce turn-around time for approvals
- To expedite the procurement process
- To keep each other informed of current and future agency plans that impact the project

❖ **Prepare for team turnover**

- Document your process
- Capture institutional knowledge



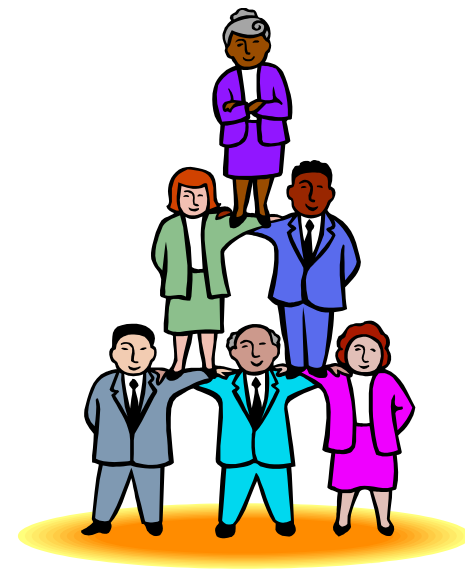


- ❖ Understand the process
- ❖ Gain support from management & staff
- ❖ Identify energy & water efficiency site needs
- ❖ Clarify expectations



- ❖ Site decision maker
- ❖ Technical staff
- ❖ Procurement personnel
- ❖ Legal rep.
- ❖ Budget rep.
- ❖ Environmental specialist

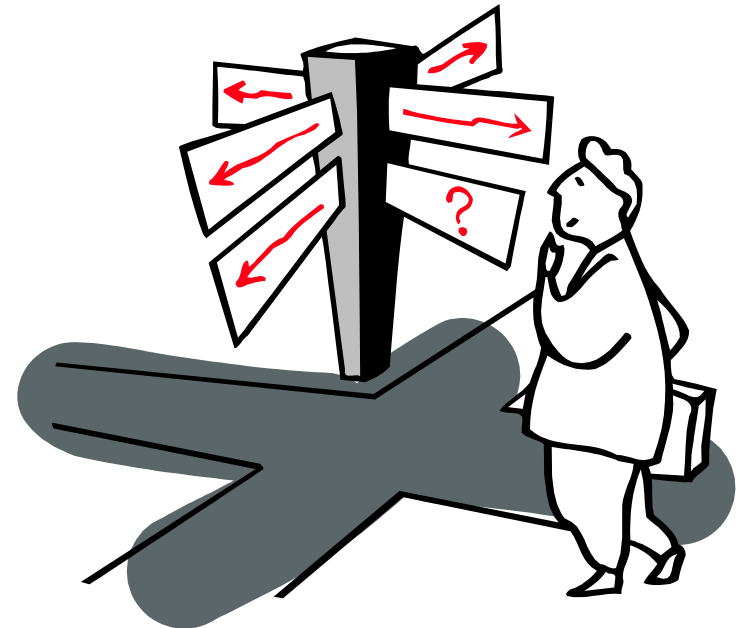
- ❖ Tenants
- ❖ Operations staff
- ❖ Maintenance personnel
- ❖ FEMP Project Facilitator (optional)
- ❖ Utility rep
- ❖ Security
- ❖ Other?





- ❖ Solve existing energy or water related problems
- ❖ Implement infrastructure improvements
- ❖ Reduce utility costs
- ❖ Save energy

What else?





Consider Project Parameters

Facility Type

+

Technologies

+

**Contract Term
Restrictions**

Required
ECMs

Potential
ECMs

Share these with utility partner



Educate
Acquisition
Team

Determine Contract
Vehicle

Utility Audit / Initial
Proposal

Feasibility Study
& Agency Review
/ Estimate

Task Order for Audit

Develop Contract
/Establish Terms &
Conditions

Planning

Identification

Engineering &
Design Package

Develop Contract
/Establish Terms &
Conditions

Construction,
Installation, and
Proof of
Performance

Final Contract

Implementation



U.S. DEPARTMENT OF
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Energy Efficiency &
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UESC - Planning

Utility Audit & Initial Proposal





- ❖ Contact utility
 - What utility services are being offered to key customers?
 - What can be expected during and as a result of the audit?
 - What will the audit cost?
- ❖ Gain concurrence
 - acquisition team & decision makers
- ❖ Request the audit – Document the request

Agreement for Audit Audit Statement of Work

_____ ("Agency") hereby requests the _____ Utility Company ("the Company") to perform an audit of the facility designated in the Master Agreement attached hereto, in accordance with the specifications contained the terms and conditions of the Utility Services Contract (or GSA Areawide Contract), contract should include energy services subject to FAR Part 41.205, dated _____ by and between the Company and the United States of America ("the Agreement").



Ask for what you need and want right up front

Table 1 – Energy Conservation Measures Analyzed

#	Measure	Electric Consumption Savings (kWh/yr)	Gas Consumption Savings (therms/yr)	Total Energy Consumption Savings (MMBtu/yr)	Total Monetary Savings (\$/yr)	Estimated Implementation Cost (\$)	Simple Payback Period (yrs)	Savings to Investment Ratio
1	Lighting Controls	637,098	-15,058	669	22,370	63,773	2.9	5.2
2	Lighting Retrofit	1,146,675	-5,628	3,351	46,001	167,313	3.6	4.1
3	Premium Eff. Air Compressor Motor	20,637	0	70	855	3,850	4.5	3.4
4	System Scheduling (EMS)	232,521	82,063	9,000	31,563	162,448	5.1	3.3
5	Control OA fraction	-216,631	151,243	14,384	31,434	161,784	5.1	3.6
6	Fix Economizers	593,674	135,077	15,534	60,692	312,368	5.1	3.2
7	Convert AHUs to VAV	1,369,034	-2,440	4,429	56,065	378,802	6.8	2.2
8	Chiller Replacement and Consolidation	1,635,662	0	5,583	67,763	716,475	10.6	1.4
9	Window Retrofit	471,198	36,908	5,299	29,384	679,215	23.1	0.7
10	Replace Existing Chillers	382,394	0	1,305	15,842	512,000	32.3	0.5
11	Central Utility Plant (CUP)	1,635,662	0	5,583	67,763	3,420,310	50.5	0.3
A1	All Measures (1 through 8)*	5,200,456	220,134	39,763	274,274	1,966,813	7.2	2.2

* Only measures 1-8 were recommended, based on cost-effectiveness



Get Your *GHG* Information

Table 3 – Annual Reduction in Greenhouse Gases due to Proposed ECMs

#	Measure	Electricity Related			Natural Gas Related		
		Reduced CO ₂ (Lb)	Reduced SO ₂ (Lb)	Reduced NO _x (Lb)	Reduced CO ₂ (Lb)	Reduced SO ₂ (Lb)	Reduced NO _x (Lb)
1	Lighting Controls	4,464	4,048	1,666,370	-647	-753	-306,883
2	Lighting Retrofit	8,034	7,286	2,999,201	-242	-281	-114,700
3	Premium Eff. Air Compressor Motor	145	131	53,977	0	0	0
4	System Scheduling (EMS)	1,629	1,478	608,174	3,529	4,103	1,672,451
5	Control OA fraction	-1,519	-1,378	-567,137	6,503	7,562	3,082,328
6	Fix Economizers	4,159	3,772	1,552,791	5,808	6,754	2,752,871
7	Convert AHUs to VAV	9,592	8,699	3,580,796	-105	-122	-49,724
8	Chiller Replacement and Consolidation	11,460	10,394	4,278,179	0	0	0
A1	All Measures (1 through 8)	36,435	33,046	13,602,124	9,466	11,007	4,486,333



Clarify Expectations of Report Content

Table 4 – Recommended Water Conservation Opportunities

Item	Quantity	Total Cost	Annual Savings			Simple Payback (Direct Only)
			Direct Water	Direct Energy	Indirect Energy	
Installation of Automatic Faucets	66	\$21,780	\$79,001	\$32,264	\$9,811	0.2
Installation of Faucet Aerators	13	\$169	\$20	\$8	\$2	5.9
Boiler Blowdown Optimization	4	\$24,000	\$250	\$1,232	\$54	16.2

Table 5 – Cost-Effective Renewable Energy Opportunities

Renewable Energy Measure	Total Capital Cost	Total Energy Cost Savings	Savings to Investment Ratio	Simple Payback Period (years)
Lighting Controls	\$53,800	\$10,070	3.0	5.3
Solar Ventilation Preheat	\$233,333	\$8,831	0.6	26.4
Facility Level Wind Generation	\$1,089,000	\$81,208	1.2	13.4

Audit Request

- Document audit expectations
- Indicate the cost and designate the COTR

After agreeing on expectations, schedule kick-off meeting & walk through

- Include utility, acquisition team and other essential facility staff
- Notify tenants in advance



- ❖ 2 years of utility data (including water)
- ❖ Current building use & equipment data
- ❖ Anticipated facility & utility use changes
- ❖ Previous audit information





- ❖ The partnership begins here
- ❖ Provide facility data, drawings, studies, future construction plans, ...
- ❖ Clarify site needs & constraints
- ❖ Provide knowledgeable staff



Remember: Success depends on open communication

Saving the utility time collecting essential data ultimately saves the government money



- ❖ Before the walkthrough,
 - the utility will review consumption & costs
 - should evaluate rate schedule options
- ❖ During the walkthrough,
 - the utility team will observe operations, use & conditions of buildings & systems
- ❖ After the walkthrough
 - anticipate follow up calls
 - and visits as needed

**The utility team will want to discuss O&M procedures
& concerns related to energy consuming systems**





- ❖ Establishes baseline (*should be agreed upon*)
 - building type, conditions & use
 - equipment specs, conditions, & use
- ❖ Describes recommended ECMs, project management & performance plans
- ❖ Offers a preliminary estimate of costs and savings
 - Energy use
 - Installed cost
 - Available incentives
 - Simple payback



- ❖ Review the audit report
 - Are assumptions, analyses and calculations clear and credible?
 - Does it provide solutions to site problems?
 - Are requested measures included?
- ❖ Consider which recommendations are suitable
- ❖ Consider the utility's technical ability and compatibility
 - Utility may partner with expert for specific technologies



Evaluating Audit: Look for issues that affect mission, feasibility & economics

Keep in mind: the feasibility study will provide more detail and accuracy



Is this a good fit for a continued partnership?

You make the call.....

- Will you say thank you and go separate ways?
- Will you negotiate revisions and move forward to the feasibility study?





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UESC - Planning Feasibility Study & Detailed Proposal

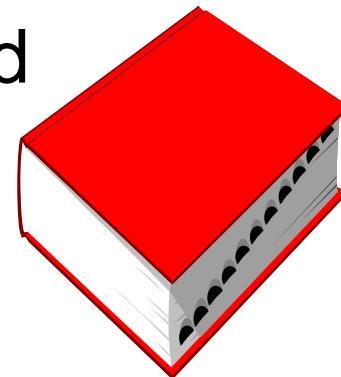




Definition

A **feasibility study** is an investment grade analysis of the site's condition and potential efficiency improvements, including a detailed presentation of both the technical and economic viability of the proposed ECMS.

Approximately \$0.1 – 0.2 per square foot





- ❖ Facility configuration
- ❖ Back-up systems
- ❖ Available in-house resources
- ❖ Union concerns
- ❖ Work environment
- ❖ Related support needs





- ❖ HVAC equipment, controls, & distribution
- ❖ Lighting
- ❖ Energy management and control systems
- ❖ Advanced metering
- ❖ Renewable energy systems
- ❖ Commissioning
- ❖ Water heating systems
 - (include solar hot water where feasible per EISA)



Technical

- ❖ Finalized baseline - buildings and energy consuming equipment & systems
 - Conditioned space & use
 - Hours of use ~ occupancy
 - Loads, conditions, & operating schedules of equipment & systems
- ❖ Recommended Measures
 - Detailed description, cut-sheets & schematics
 - Assumptions
 - Interplay between measures
 - Estimated energy, cost & maintenance savings with calculations
 - Estimated implementation costs
 - Method of verifying savings
 - Commissioning plan
 - O&M ~ start up and on-going requirements
 - Environmental benefits ~ CO₂, SO₂ & NO_x
 - Environmental actions ~ ballast disposal

LCC analysis



Price

❖ Detailed cost estimate

- Labor
- Rental equipment
- Materials
- Subcontracts
- Taxes
- Engineering services
- Project management costs
- Performance bond
- Overhead rate
- Authorized profit

❖ Rebates & incentives

- Provide process of application, assignment and acceptance

❖ Itemized costs

- M&V
- O&M
- Commissioning
- Guarantee for performance or savings



Evaluating the Study

- ❖ Inclusion of requested ECMs
- ❖ Reasonable savings calculations
- ❖ Reasonable baseline
- ❖ Reasonable assumptions and interaction of ECMs
- ❖ Inclusion of ECMs for water and renewables
- ❖ Adequate consideration of site-specific issues
- ❖ Adequate consideration of environmental benefits & issues
- ❖ Reasonable Price
- ❖ Reasonable financing rate & contract term
- ❖ Do savings exceed payments?
- ❖ Are the proposed measures fuel neutral?





❖ Did the Utility

- Identify and use the best rate schedule when calculating savings?
- Consider early ECM payoffs and financial impacts?

❖ Did the Agency

- Do an “independent cost estimate”?
 - Use cost estimating handbooks and past experience to analyze the project implementation costs
- Consider level of competition among subcontractors?
- Examine adders: project management, hourly rate, OH and profit (both % and basis), taxes?



U.S. DEPARTMENT OF
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Energy Efficiency &
Renewable Energy

UESC – Implementation **Engineering & Design** **&** **Construction & Performance Testing**



TASK ORDER For Engineering & Design Statement of Work

Recommendations Approved for Engineering & Design
Statement of Work Specifications

Confirm the Scope of Work

Confirm the Cost

Sign Task Order



Although we show this step separate from construction; it is more often combined



The results of this phase should be 100% design, plans & specifications and a detailed price proposal consistent with the Feasibility Study

The design package should include:

- Plans for Commissioning, Performance Verification, and continued effective O&M
- A final price proposal
- A construction schedule w/ planned service interruptions, environmental compliance, quality control, and ECM installation sequence



FEMP provides technical assistance with proposal and design reviews, advice on technologies and help resolving contracting questions and concerns

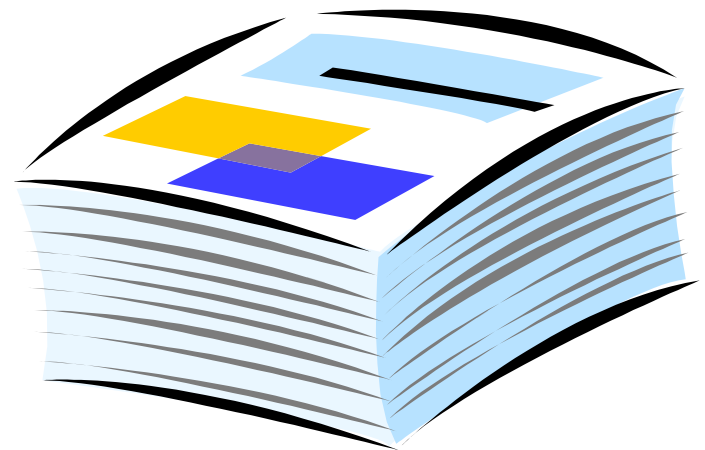


- ❖ Commissioning Objectives - Design with a focus on commissioning and continued effective maintenance
 - Optimize equipment and control systems
 - Support effective O&M with training, documentation, and maintenance strategies that maintain and/or improve energy efficiency
- ❖ Develop a Commissioning Plan
 - Include specific actions for commissioning during construction, acceptance and post acceptance
 - Address commissioning for each recommendation and interactions between recommendations and existing systems

Develop “design and operating intent” early in the process
(Feasibility kick-off meeting)



- ❖ The feasibility study results or final proposal becomes the SOW for the Construction phase
- ❖ Review – Discuss – Agree on ECMs – Negotiate costs
- ❖ Pay – or - Roll





Contracting Officer issues task order for Construction & Installation Phase

TASK ORDER FOR CONSTRUCTION STUDY STATEMENT OF WORK

Recommendations Approved for Construction
Statement of Work Specifications

AGREEMENT FOR CONSTRUCTION TASK ORDER

_____ ("Agency") hereby requests the _____
Utility Company ("the Company") to proceed with construction for the facility
designated in the Master Agreement attached hereto, in accordance with the
specifications contained the terms and conditions of the Utility Services
Contract (or GSA Areawide Contract), contract should include energy services
subject to FAR Part 41.205, dated _____ by and between the Company
and the United States of America ("the Agreement").

Construction - for each approved recommendation designated



Initiate Project Construction and Installation

- ❖ CO issues task order for Construction & Installation Phase
- ❖ Pre-construction meeting
 - The COTR and facilities/engineering staff and utility reps review and coordinate project schedule, installation & inspection
 - Work with inspection and implementation site personnel to approve the final construction schedule





- ❖ Plans & Specifications
- ❖ Final Performance Verification Plan
- ❖ Final Commissioning Plan
- ❖ Final Training Plan
- ❖ Equipment submittals
- ❖ Construction schedule

What else would you like to see?



Payment & Performance Bonds

**After approval of ECM installation plans, the utility shall submit
Payment & Performance Bonds or a “Letter of Credit”**



- ❖ The agency monitors the construction to assure work is proceeding as planned
- ❖ The utility must notify the agency when each ECM is ready for testing and performance verification





- ❖ Provide a clear definition of performance goals
- ❖ Perform work properly the first time
- ❖ Provide clear assignment of responsibility
- ❖ Verify completion
- ❖ Review operations after installation is complete

Commissioning can save considerable amounts of energy; even after energy-savings retrofits have been implemented

- **Identify and remedy problems**
- **Optimize component & systems**

Examples: simultaneous heating and cooling, frozen valves, stuck dampers, fouled filters, over-ridden or malfunctioning variable speed drives, sub-optimized temperature controls, and excessive equipment cycling



- ❖ O&M manuals for installed ECMs
- ❖ Performance/Testing / Commissioning results
- ❖ Inventory of spare parts (lamps, ballasts)
- ❖ As-built drawings
- ❖ Training manuals
- ❖ Warranties (including date at beneficial use)
- ❖ Davis-Bacon wage rates
- ❖ Performance bonds on subcontractors
- ❖ Letter of credit from utility



- ❖ Per contract requirements, the utility notifies the agency of project completion
- ❖ Agency deems
 - Substantial completion/beneficial occupancy
 - Final completion and acceptance
 - Completion of punchlist
- ❖ The agency notifies the utility of project acceptance in writing

**The government must verify that
installation & performance meets the design intent**



- ❖ Include hands-on operation of new equipment:
 - start-up, operation in normal and emergency modes, shutdown procedures, seasonal changeover, and manual/automatic control
 - Energy Management and Control System sequencing, strategies, operation and programming
- ❖ Provide periodic training over the contract term
- ❖ Training documentation should include:
 - Video tape of the training sessions
 - O&M manuals for new equipment
 - Routine maintenance requirements and schedules
 - Health and safety issues and concerns
 - When and how to re-commission

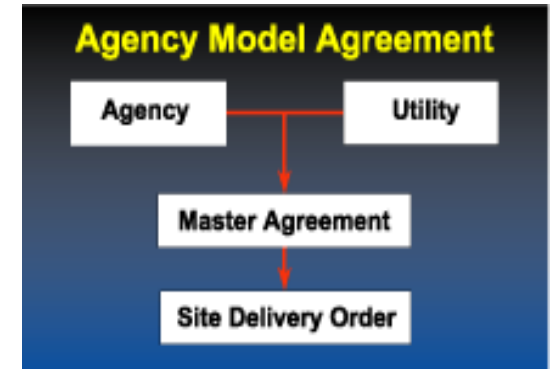
Utility Energy Services Contracts

Contract Development





- ❖ Language developed by Edison Electric Institute, technical, legal & contracting officers from DOD, DOE and other agencies
- ❖ Reviewed and approved by public and private authorities
- ❖ Includes ~80% of terms & conditions for UESC



Provides language used successfully many times



**AGREEMENT FOR ENERGY CONSERVATION AND DEMAND
SIDE MANAGEMENT SERVICES
BETWEEN
THE UNITED STATES OF AMERICA
AND
_____ UTILITY COMPANY**

This Agreement for implementation of Energy Conservation Measures (ECMs) is entered into this _____ day of _____, 200_, by and between _____ Utility Company (Utility) and the United States of America (Government), represented by the Contracting Officer executing this Agreement. The signatories to this Agreement will be sometimes collectively referred to as the “Parties” and individually as a “Party.” This Agreement (when signed by the Parties), any Task Orders (T.O.) executed pursuant to this Agreement, and any other associated agreements shall constitute the entire Contract between the Parties with respect to a particular ECM. A term or condition contained in this Agreement may be amended at any time by mutual written agreement of the Parties. However, termination, modification, or expiration of a term or condition shall not retroactively affect T.O.s previously entered into under this Agreement.

The Parties agree to the following principles, concepts and procedures:

GENERAL CONDITIONS

GC.1 Purpose. The Government desires assistance in accomplishing ECMs at _____ Installation (“Installation”) (may substitute “at all Installations within the Utility Company’s service area, to include [list the installations by name] (“hereinafter, “Installations”)”). The purpose of this Agreement is to facilitate the implementation of ECMs through T.O.s. This Agreement sets forth the terms and conditions under which subsequent T.O.s may be entered into between the Parties.

GC.2 Definitions. Terms used in this Agreement



- ❖ Most UESCs are a combination construction/ service contract.

Utilization of FAR clauses is dependent on type of work

- Determined by project specs and CO (some Navy C.O.'s consider contracts to be pure construction)
- For project's design activities and performance phase activities (O&M, M&V), use FAR clauses for services, including supplemental clauses for A/E services
- For project's installation activities, use FAR clauses for construction.



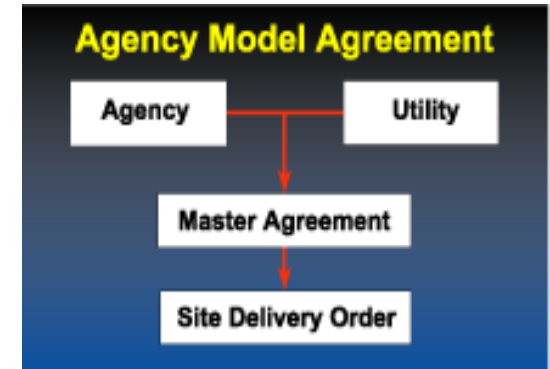


- ❖ Wages and rates
 - Davis Bacon rates for construction, Service Contract Act rates for services (except A/E design services)
- ❖ Warranty
 - FAR 52.246-20 for construction, FAR 52.246-21 for services
- ❖ Payment and performance bonds
 - Requirements determined by CO, utility letter of credit is low cost option
 - FAR 28.102 or 52.228-15 for construction, FAR 28.103 or 52.228-16 for services





- ❖ General Conditions
- ❖ Warranties & Remedies
- ❖ Financing and Payment Provisions
- ❖ Special Requirements



Model Agreement & Explanations

<http://www1.eere.energy.gov/femp/docs/civagree.doc>

<http://www1.eere.energy.gov/femp/pdfs/civexplan.pdf>

Utility Energy Services Contracts

Financing Overview





- ❖ Necessary in most projects
- ❖ Provides specialized construction & permanent financing
- ❖ Offers non-recourse financing
- ❖ Works with Prime Contractor (Utility) and the Agency
- ❖ Prepares documentation
- ❖ Terminology Website: www.investopedia.com



How do Financiers Assess and Price Project Risks and Costs?

- ❖ Evaluate Strength of ESCO or Utility
- ❖ Evaluate Economics, Technologies and the Extent of the Energy Savings Guarantee
- ❖ Evaluate the Contract's Termination Language
 - Termination Schedule
- ❖ Size of Financing
- ❖ Term of Financing



- ❖ Most ESCO/utilities use financial institutions
- ❖ Select qualified prime contractors
- ❖ Talk to financial institutions
- ❖ Use agency resources in analysis
- ❖ Ask for alternative structures
- ❖ Be flexible on documentation
- ❖ Require strong letters of commitment
- ❖ Consider the financial risks



- ❖ Performance Risk
 - Project Construction
 - Energy Savings Guarantee
 - Ongoing O&M
- ❖ Contract Administration
- ❖ Project Requirements
 - Term and Size of Financing
 - Fixed or Variable Rates
 - Additional Financing Fees



- ❖ Interest rate is determined by:
 - Base rate relative to market rate (Treasury Note or SWAP rate)
 - Increases for contract terms/risks (addder)
- ❖ Escrow accounts are the main type of financing structure used during construction
- ❖ Ultimately, pricing and terms are set by comparing a project's overall risk and return to similar projects in the private sector



❖ Base Rate

- Currently based on Treasury Note rate or SWAP rate for payment term and mode of the contract
- The Treasury Note rate is less volatile

❖ Spread

- Basis points (1/100% or .01%) added as a result of lender's perception of project's risk
- Contributing elements include participant risk (utility/customer), project risk, market dynamics and contract risk (financed amount and term, payment mode and frequency, and other terms/conditions)

(Spread is the difference between the bid and ask prices for a particular security A large spread often indicates inactive trading of the security)



<u>Component</u>	<u>Treasury Note*</u>	<u>SWAP*</u>
10-Year Base Rate	3.68%	4.04%
Spread	4.00%	3.75%
Total	7.68%	7.79%

Websites for rates:

Treasury Rates:

(Historical): <http://www.federalreserve.gov/releases/h15/update/>

(Real-Time): <http://www.bloomberg.com/markets/rates/index.html>

SWAP Rates:

(Historical): <http://markets.ft.com/ft/markets/researchArchive.asp?report=ICAP>

*An Example Only – Not Representative of Actual Rates



Escrow Financing Example

Escrow Project Financing Example

Monthly Draws

Assumptions

Interest Rate:	6.72%
Draw Total:	\$10,000,000
Capitalized Finance Charges:	\$552,577
Total Amount Financed:	\$10,552, 577
Monthly Payments:	\$121,007
Payment Term (in months):	120
Total Annual Payments:	\$1,452,084
Total Payments:	\$14,520,840

Payment Mode Comparison

10 Annual-in-Advance Payments:	\$1,408,424
Total AIA Payments:	\$14,084,240
Total Payment Mode Savings:	\$436,600

Utility Energy Services Contracts

Things to Consider & Closing Remarks





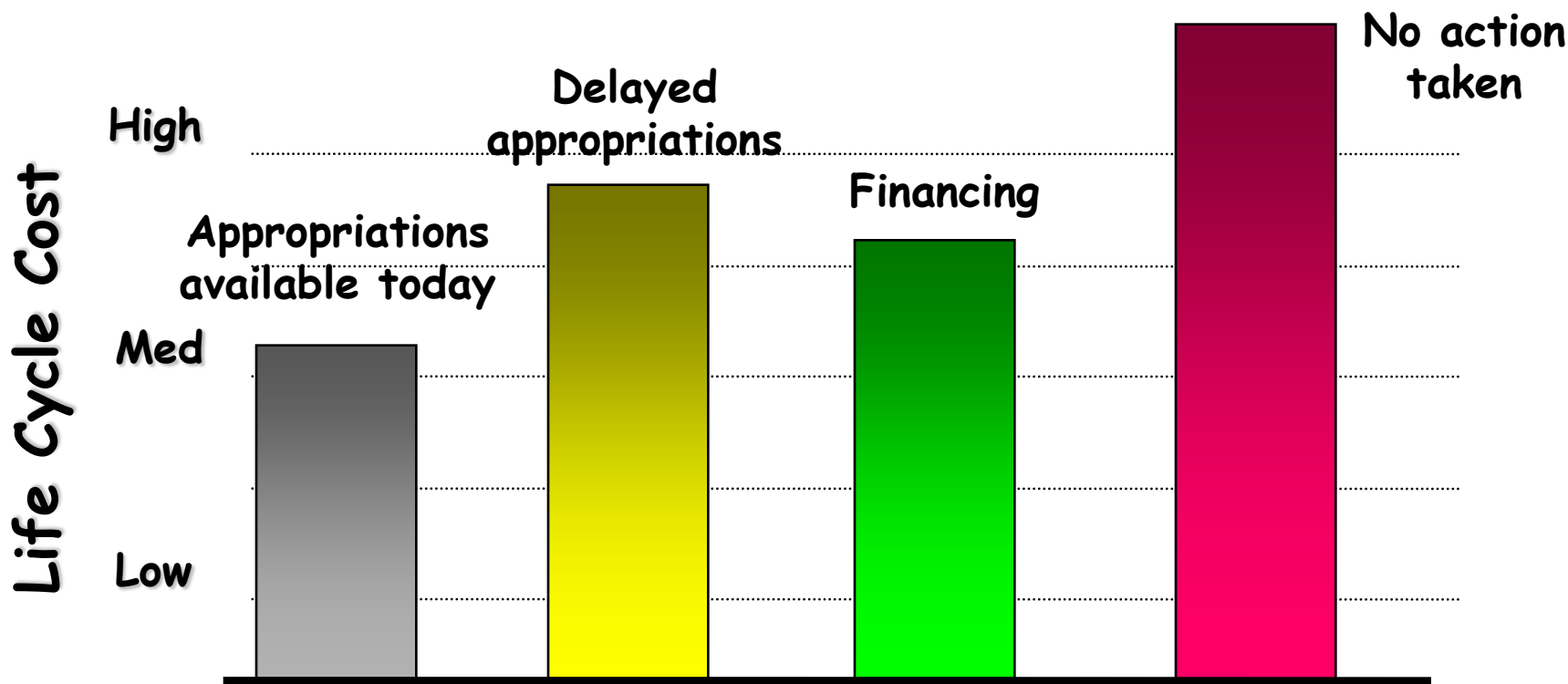
- ❖ Bundle Projects
- ❖ Keep the Financing Term Under 15 Years
- ❖ Insure the Government Contract has Desirable Termination Language
- ❖ Fix Interest Rates at Time of Award
- ❖ Provide Limited or No Energy Savings Guarantees
- ❖ Work Only with Companies with the Very Highest Credit Ratings
- ❖ Don't Include Other Financing Fees in Rate



- ❖ Use GSA and FEMP for advice and support, briefings to project teams and management
- ❖ Find background information on web sites:
 - www.eere.energy.gov/femp/utility.html
 - <http://gsa.gov/pbs/xu/>
- ❖ See the UESC online video from FEMP that showcases this process
 - http://www1.eere.energy.gov/femp/financing/uescs_nih.html



The Cost of Delaying a Project



Any delay in project implementation results in loss of life cycle savings



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